UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,570	12/30/2003	Leonard Ciprian Mosescu	MSFT-2831 304071.01	8071

41505 7590 06/27/2006	EXAMINER
WOODCOCK WASHBURN LLP (MICROSOFT CORPORATION)	AHLUWALIA, NAVNEET K
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	ART UNIT	PAPER NUMBER
PHILADELPHIA, PA 19103	2166	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/748,570	MOSESCU, LEONARD CIPRIAN
	Examiner	Art Unit	
	Navneet K. Ahluwalia	2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 December 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-36</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-36</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>30 December 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>06/22/2006</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   The application has been examined. Claims 1 – 36 are pending in this office

action.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

3.   Claims 10 – 11, 22 – 23, and 34 – 35 are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention.

4.   Claims 10, 22 and 34 recites the limitation "the normalized index key" in lines 1, 2

and 1 respectively of the claim language. There is insufficient antecedent basis for this

limitation in the claim.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by
> another filed in the United States before the invention by the applicant for patent or (2) a patent
> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

6.   Claims 1 – 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Peter

Bumbulis ('Bumbulis' herein after) (US 2003/0204513 A1).

With respect to claim 1,

        Bumbulis discloses a system for index key normalization comprising a processor

adapted for:

        (a) selecting a column of an index key (paragraph 15, Bumbulis);

        (b) generating a marker corresponding to the selected column (paragraph 70,

            Bumbulis);

        (c) generating a normalized column value corresponding to the selected column

            (paragraph 21, Bumbulis); and

        (d) appending the marker and the normalized column value pair to a previously

            generated marker and normalized column value pair if any (paragraph 86,

            Bumbulis).

With respect to claim 2,

        Bumbulis discloses the system of claim 1, wherein the processor repeats steps

(a)-(d) for each column in the index key (paragraph 76 and figure 8A, 8B, Bumbulis).

With respect to claim 3,

        Bumbulis discloses the system of claim 1, wherein the processor, after

generating the marker, determines if a column value is null, determines if a column

value is of type bit, and determines if the column is sorted in ascending or descending

order (paragraph 19 and 25, Bumbulis).

With respect to claim 4,

Bumbulis discloses the system of claim 3, wherein the processor modifies the

marker to indicate if the column value is null, is of type bit, and if the column is sorted in

ascending or descending order (paragraph 227, Bumbulis).

With respect to claim 5,

Bumbulis discloses the system of claim 1, wherein the processor generates the

normalized column value by determining the type of the column value, and applying a

type specific mapping function to the column value (paragraph 228, Bumbulis).

With respect to claim 6,

Bumbulis discloses the system of claim 5, wherein the processor compares the

normalized column value to other normalized column values independent of the original

column type (paragraph 69, Bumbulis).

With respect to claim 7,

Bumbulis discloses the system of claim 1, wherein the processor standardizes

the size of the marker and the normalized column value pair before appending the

marker and the normalized column value pair to the previously generated marker and

normalized column value pair if any (figure 6, 8A and 8B, Bumbulis).

With respect to claim 8,

Bumbulis discloses the system of claim 7, wherein the processor standardizes

the size of the marker and the normalized column value pair by comparing the marker

and normalized column value pair to a predetermined maximum size and computing a

checksum using the pair if the pair is greater than the predetermined maximum size;

truncating the marker and normalized column value pair by removing bits from the end

of the pair in excess of the predetermined maximum size; and replacing the end bytes

of the truncated pair with the computed checksum (paragraphs 21 and 86, figure 6,

Bumbulis).

With respect to claim 9,

Bumbulis discloses a system for index key column unnormalization comprising a

processor adapted for: determining if the type of a selected column value can be

unnormalized; and if so, determining if the selected column was truncated; and

generating the unnormalized column value if the selected column was not truncated

(figures 8A and 8B, paragraphs 76 and 86, Bumbulis).

With respect to claim 10,

Bumbulis discloses the system of claim 9, wherein the processor moves through

the normalized index key until the selected column is reached, by:

(a) determining if the current column is a fixed size or variable size type

(paragraph 21, Bumbulis); and

(b) if the current column is a fixed size type, moving forward in the normalized

index key a number of bytes equal to the size of the fixed size type, or if the

current column is a variable size type, moving forward in the normalized index

key a number of bytes equal to the length of the column, determined by

examining each byte of the current column until the end of the column is

reached (paragraph 227 – 228, Bumbulis).

With respect to claim 11,

Bumbulis discloses the system of claim 10, wherein the processor repeats steps

(a) and (b) for each column in the normalized index key until the selected column is

reached (paragraph 76, Bumbulis).

With respect to claim 12,

Bumbulis discloses the system of claim 9, wherein the processor determines if

the selected column was truncated by determining if the selected column is a fixed size

or variable size type; and, if the selected column is a fixed size type, determining if the

size of the previous columns in the index key plus the size of the selected column is

greater than a predetermined maximum size, or, if the selected column is a variable size

type, examining each byte of the selected column until the end of the column is reached

or the number of bytes examined plus the size of the previous columns in the index key

exceed a predetermined maximum size (figure 6, paragraphs 21 and 86, Bumbulis).

With respect to claim 13,

Bumbulis discloses a computer-readable medium having stored thereon computer-executable instructions for performing a method for index key normalization comprising:

(a) selecting a column of an index key (paragraph 15, Bumbulis);

(b) generating a marker corresponding to the selected column (paragraph 70, Bumbulis);

(c) generating a normalized column value corresponding to the selected column (paragraph 21, Bumbulis); and

(d) appending the marker and the normalized column value pair to a previously generated marker and normalized column value pair if any (paragraph 86, Bumbulis).

With respect to claim 14,

Bumbulis discloses the computer-readable medium of claim 13, further comprising computer-executable instructions for repeating steps (a)-(d) for each column in the index key (paragraph 76 and figure 8A, 8B, Bumbulis).

With respect to claim 15,

Bumbulis discloses the computer-readable medium of claim 13, further

comprising computer-executable instructions for, after generating the marker:

determining if a column value is null; determining if a column value is of type bit; and

determining if the column is sorted in ascending or descending order (paragraph 19 and

25, Bumbulis).

With respect to claim 16,

Bumbulis discloses the computer-readable medium of claim 15, further

comprising computer-executable instructions for modifying the marker to indicate if the

column value is null, is of type bit, and if the column is sorted in ascending or

descending order (paragraph 227, Bumbulis).

With respect to claim 17,

Bumbulis discloses the computer-readable medium of claim 13, wherein

generating the normalized column value comprises: determining the type of the column

value; and applying a type specific mapping function to the column value (paragraph

228, Bumbulis).

With respect to claim 18,

Bumbulis discloses the computer-readable medium of claim 17, further

comprising computer-executable instructions for comparing the normalized column

value to other normalized column values independent of the original column type

(paragraph 69, Bumbulis).

With respect to claim 19,

Bumbulis discloses the computer-readable medium of claim 13, further comprising computer-executable instructions for standardizing the size of the marker and the normalized column value pair before appending the marker and the normalized column value pair to the previously generated marker and normalized column value pair if any (figure 6, 8A and 8B, Bumbulis).

With respect to claim 20,

Bumbulis discloses the computer-readable medium of claim 19, wherein standardizing the size of the marker and the normalized column value pair comprises: comparing the marker and normalized column value pair to a predetermined maximum size and computing a checksum using the pair if the pair is greater than the predetermined maximum size; truncating the marker and normalized column value pair by removing bits from the end of the pair in excess of the predetermined maximum size; and replacing the end bytes of the truncated pair with the computed checksum (paragraphs 21 and 86, figure 6, Bumbulis).

With respect to claim 21,

Bumbulis discloses a computer-readable medium having stored thereon computer-executable instructions for performing a method for index key column

unnormalization comprising: determining if the type of a selected column value can be

unnormalized; and if so, determining if the selected column was truncated; and

generating the unnormalized column value if the selected column was not truncated

(figures 8A and 8B, paragraphs 76 and 86, Bumbulis).

With respect to claim 22,

Bumbulis discloses the computer-readable medium of claim 21, further

comprising computer-executable instructions for moving through the normalized index

key until the selected column is reached, by:

> (a) determining if the current column is a fixed size or variable size type
>
> (paragraph 21, Bumbulis); and
>
> (b) if the current column is a fixed size type, moving forward in the normalized
>
> index key a number of bytes equal to the size of the fixed size type, or if the
>
> current column is a variable size type, moving forward in the normalized index
>
> key a number of bytes equal to the length of the column, determined by
>
> examining each byte of the current column until the end of the column is
>
> reached (paragraph 227 – 228, Bumbulis).

With respect to claim 23,

Bumbulis discloses the computer-readable medium of claim 22, further

comprising computer-executable instructions for repeating steps (a) and (b) for each

column in the normalized index key until the selected column is reached (paragraph 76,

Bumbulis).

With respect to claim 24,

Bumbulis discloses the computer-readable medium of claim 21, wherein

determining if the selected column was truncated comprises: determining if the selected

column is a fixed size or variable size type; and if the selected column is a fixed size

type, determining if the size of the previous columns in the index key plus the size of the

selected column is greater than a predetermined maximum size, or, if the selected

column is a variable size type, examining each byte of the selected column until the end

of the column is reached or the number of bytes examined plus the size of the previous

columns in the index key exceed a predetermined maximum size (figure 6, paragraphs

21 and 86, Bumbulis).

With respect to claim 25,

Bumbulis discloses a method for index key normalization comprising:

(a) selecting a column of an index key (paragraph 15, Bumbulis);

(b) generating a marker corresponding to the selected column (paragraph 70,

Bumbulis);

(c) generating a normalized column value corresponding to the selected column

(paragraph 21, Bumbulis); and

(d) appending the marker and the normalized column value pair to a previously

generated marker and normalized column value pair if any (paragraph 86,

Bumbulis).

With respect to claim 26,

Bumbulis discloses the method of claim 25, further comprising repeating steps

(a)-(d) for each column in the index key (paragraph 76 and figure 8A, 8B, Bumbulis).

With respect to claim 27,

Bumbulis discloses the method of claim 25, further comprising, after generating

the marker: determining if a column value is null; determining if a column value is of

type bit; and determining if the column is sorted in ascending or descending order

(paragraph 19 and 25, Bumbulis).

With respect to claim 28,

Bumbulis discloses the method of claim 27, further comprising modifying the

marker to indicate if the column value is null, is of type bit, and if the column is sorted in

ascending or descending order (paragraph 227, Bumbulis).

With respect to claim 29,

Bumbulis discloses the method of claim 25, wherein generating the normalized

column value comprises: determining the type of the column value; and applying a type

specific mapping function to the column value (paragraph 228, Bumbulis).

With respect to claim 30,

Bumbulis discloses the method of claim 29, further comprising comparing the normalized column value to other normalized column values independent of the original column type (paragraph 69, Bumbulis).

With respect to claim 31,

Bumbulis discloses the method of claim 25, further comprising standardizing the size of the marker and the normalized column value pair before appending the marker and the normalized column value pair to the previously generated marker and normalized column value pair if any (figure 6, 8A and 8B, Bumbulis).

With respect to claim 32,

Bumbulis discloses the method of claim 31, wherein standardizing the size of the marker and the normalized column value pair comprises: comparing the marker and normalized column value pair to a predetermined maximum size and computing a checksum using the pair if the pair is greater than the predetermined maximum size; truncating the marker and normalized column value pair by removing bits from the end of the pair in excess of the predetermined maximum size; and replacing the end bytes of the truncated pair with the computed checksum (paragraphs 21 and 86, figure 6, Bumbulis).

With respect to claim 33,

Bumbulis discloses a method for index key column unnormalization comprising: determining if the type of a selected column value can be unnormalized; and if so, determining if the selected column was truncated; and generating the unnormalized column value if the selected column was not truncated (figures 8A and 8B, paragraphs 76 and 86, Bumbulis).

With respect to claim 34,

Bumbulis discloses the method of claim 33, further comprising moving through the normalized index key until the selected column is reached, by:

   (a) determining if the current column is a fixed size or variable size type
       (paragraph 21, Bumbulis); and

   (b) if the current column is a fixed size type, moving forward in the normalized
       index key a number of bytes equal to the size of the fixed size type, or if the
       current column is a variable size type, moving forward in the normalized index
       key a number of bytes equal to the length of the column, determined by
       examining each byte of the current column until the end of the column is
       reached (paragraph 227 – 228, Bumbulis).

With respect to claim 35,

Bumbulis discloses the method of claim 34, further comprising repeating steps (a) and (b) for each column in the normalized index key until the selected column is reached (paragraph 76, Bumbulis).

With respect to claim 36,

Bumbulis discloses the method of claim 33, wherein determining if the selected column was truncated comprises: determining if the selected column is a fixed size or variable size type; and if the selected column is a fixed size type, determining if the size of the previous columns in the index key plus the size of the selected column is greater than a predetermined maximum size, or, if the selected column is a variable size type, examining each byte of the selected column until the end of the column is reached or the number of bytes examined plus the size of the previous columns in the index key exceed a predetermined maximum size (figure 6, paragraphs 21 and 86, Bumbulis).
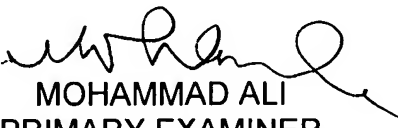
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Navneet K. Ahluwalia whose telephone number is 571-272-5636. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alam T. Hosain can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Navneet K. Ahluwalia
Examiner
Art Unit 2166

MOHAMMAD ALI
PRIMARY EXAMINER

Dated: 06/22/2006